

Flight

A Journal devoted to the Interests, Practice, and Progress of
Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE AERO CLUB OF THE UNITED KINGDOM.

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A PLEA FOR BRITISH UNITY.

Now is essentially the time for every far-seeing English man, Scotsman, and Irishman—and, for that matter, for every enlightened Manxman also—to put his shoulder to the wheel in deadly earnest in the interests of the future aeronautic industry within the United Kingdom. Very probably there is not one reader of these lines in a thousand who does not feel that this country needs wakening up to an appreciation of the immediate prospects of mechanical flight; and consequently that is an axiom which may be taken for granted without further palaver. There is nevertheless a grave risk that many of those who fully admit the truth of this sweeping indictment, will yet continue to content themselves with the thought, instead of applying the corresponding moral in a practical form to themselves as individuals. And so, to one and all, this week, we would address a very urgent appeal, the exact nature of which automatically divides itself under three distinct headings. First of all we would, however, remind the reader that whatever is done, or is left undone, just now, is destined to have an extremely potent influence upon the early history of the era of flight when that record comes to be written. The handicap with which we start, the rate of subsequent progress, and the part which this country will play in competition with the rest of the world during the next few decades, depend enormously upon things which may seem to-day to have but little importance; while, similarly, the very spirit of the coming sport, and the respect in which the movement is to be held by the masses of the people, hangs primarily upon the social standing and prestige that can be won for it in the early days on which we are already entering. By the greatest of good luck, we have for aeronautics an admirable precedent of an almost precisely parallel kind from which to foresee possible contingencies. We refer, of course, to the automobile movement of the last few years; and may, without unduly labouring the point, recall the total lack of precedent which was available to guide its early footsteps. Never before the advent of the motor car was any highly technical development brought about with the practical aid of those who hoped to derive the direct personal benefit from it; since never before was any large section of the non-engineering public brought into close contact with the actual management of any complicated type of mechanism. As matters now stand, however, the cult of aviation is to be very much on a par with that of automobilism. It will have its preliminary sporting days of races and trials; it will have

its subsequent days of keenly-contested competitions for the industry; it will have its specially-trained leaders and followers with their own technical institutions; and above all, it will have its social organisations to safeguard the interests of the owner and user throughout the country. Everything therefore depends, for a start, on the loyal co-operation of everyone connected with the movement, and on the power that can be placed behind a national representative body, formed for the sole purpose of encouraging the sport and the industry, by every legitimate means, and in an absolutely independent manner. A vastly greater amount of hard spade and shovel work has to be done in the initial stages than was ever needed to instal the motor car upon the roads, and consequently it should be the first thought of everyone who takes the least interest in the subject to insure unity of action, by eschewing, like poison, any possible cause for future internal friction within the leading aeronautic circles. On the one hand, funds are needed for furthering the work; and these funds can only be disbursed to best advantage if one set of executive expenses have to be deducted from the total money that is forthcoming. On the other hand, a capable permanent staff is necessary to conduct the work that is undertaken at the direct instigation of the entire membership, acting through its elected committees; and no guarantee can possibly be obtained against personal jealousies, leading to weakening discord between the various bodies, if more than one staff of officials (each answerable only to its own institution) is employed to do the work of the country's owners and users. Practically it may be said that we have a clean sheet from which to make a commencement during the present year. But one reason why we have laid such emphasis on the need for unity of representation is that a certain amount of "rubbing out" is already needed. Representation, at the moment that we write, may lead to future trouble unless the risk is warded off at once; and it is in order to avoid this risk that the appeal which we issue to-day is three-fold instead of two-fold. Firstly, we would ask every reader of FLIGHT to help forward the cause either by seeking election as a member of the Aero Club of the United Kingdom, if he is a prospective owner, user or patron; or by joining the Aero Club League, if he is a worker, enthusiast or well-wisher. Secondly, we would ask everyone to try and induce their friends to become members of the League, thereby aiding British progress. And, finally, we appeal to members of the Aeroplane Club to throw in their lot with the Aero Club, and thus help to secure single, complete, and dignified representation for the whole aeronautic community in the United Kingdom.

THE FIRST PARIS AERONAUTICAL SALON.

(Concluded from page 35, January 16th.)

THE following are brief summary descriptions of the leading engines at the Paris Salon :—

Gnome.

Rotary engine having seven equidistant radial cylinders mounted about a fixed crank-shaft. The cylinders are

are made of steel, in one piece with their heads, and have aluminium water-jackets. The crank-chamber is a one-piece aluminium casting, slotted at the ends to pass the crank-shaft, which is supported in bearings capped from above. The slot is then closed by a plate. The valves are in the cylinder-heads, and on future models will both be mechanically operated. Fuel is injected into the induction-pipe by a pump, and the circulation of oil is forced. External gear-wheels drive the circulating-pump, cam-shaft, and magneto.

Fiat.

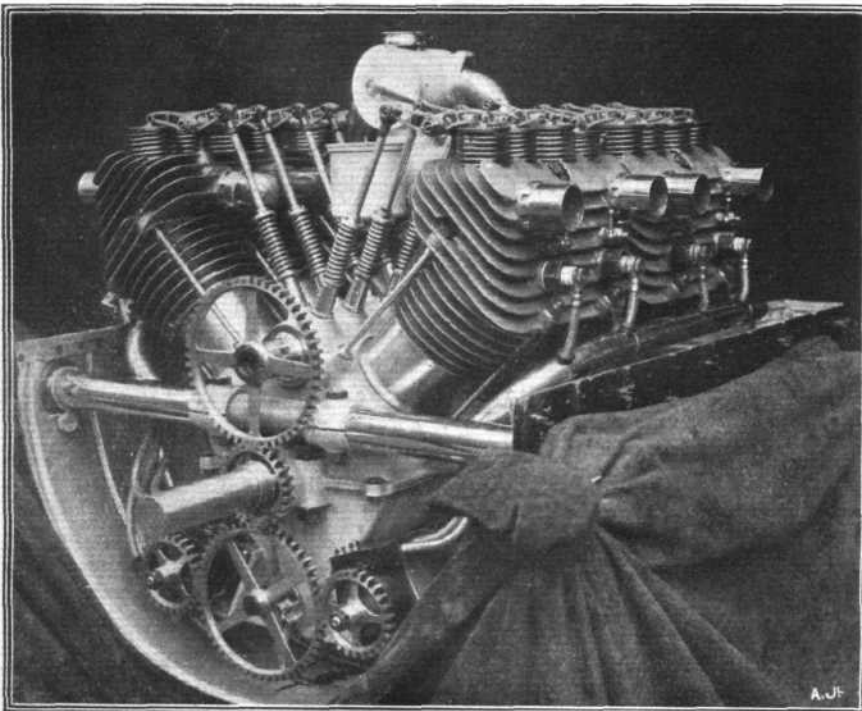
Eight-cylinder V type air-cooled engine. The inlet- and exhaust-valves are placed in an inverted vertical position alongside one another so that they can be operated by rock-levers from separate push-rods. The appearance of the engine is peculiar on account of the shape of the cylinder casting with its finned surface.

Renault.

Eight-cylinder V type engine with induced draught cooling by means of an enclosed fan. The space between the opposite rows of cylinders is enclosed by an aluminium casing, through which the fan on one end of the crank-shaft is able to induce a draught past the radiating ribs on the cylinder walls. Both inlet and exhaust-valves are mechanically operated.

Clement-Bayard.

Fixed horizontal engine having 7 radial cylinders, which are water cooled. The cylinders are made of forged steel in one piece with their heads, and have brass water-jackets shrunk into place. The valves are inclined in the heads, and are both operated by the same push-rod by means of a pivoted beam. The exhaust-valve is inserted



PARIS AERO SALON.—View of the 8-cyl. Fiat aero motor, showing the vertical overhead valves, which are mechanically operated.

made of steel and are solid with their heads and radiating fins ; they are attached to a cylindrical steel crank-chamber from the inside and no bolts show on the exterior.

Mixture enters the cylinders from the crank-chamber through atmospheric valves in the pistons, and the exhaust blows straight out into the air through mechanically-operated valves in the cylinder-heads ; incidentally it impinges on the valve-operating mechanism. The exhaust-valves are operated by a set of eight radial push-rods actuated by a multiple-cone disc having its seven cams all in different planes. The carburettor is situated in any convenient place on the machine and is coupled up to the hollow stationary crank-shaft. Magneto ignition is provided ; the magneto being mounted alongside the crank-shaft and gear-driven. The rotation of the cylinders is, of course, relied upon to keep them cool ; they are lubricated through the hollow crank-shaft.

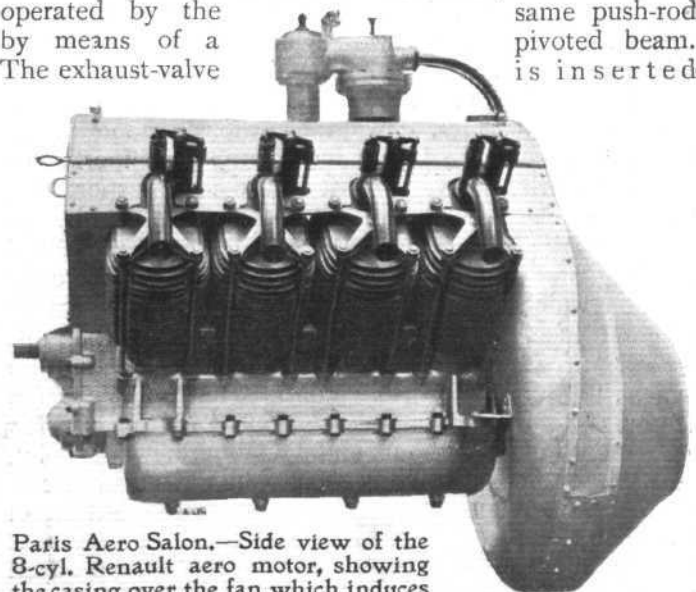
Farcot.

Horizontal 8-cyl. air-cooled engine, the cooling being effected by a large steel fan mounted direct on the upper end of the crank-shaft. The propeller-shaft is driven through bevel gearing, as also are the magneto and distributor. The induction and exhaust valves are combined in one so as to be mechanically operated by the same rod. The cylinders are set in two planes, and there are two cranks at 180 degrees apart.

Wright.

Vertical 4-cyl. engine, made by Bariquand and Marre, but based on Wilbur Wright's own motor. The cylinders

are made of forged steel in one piece with their heads, and have brass water-jackets shrunk into place. The valves are inclined in the heads, and are both operated by the same push-rod by means of a pivoted beam. The exhaust-valve is inserted



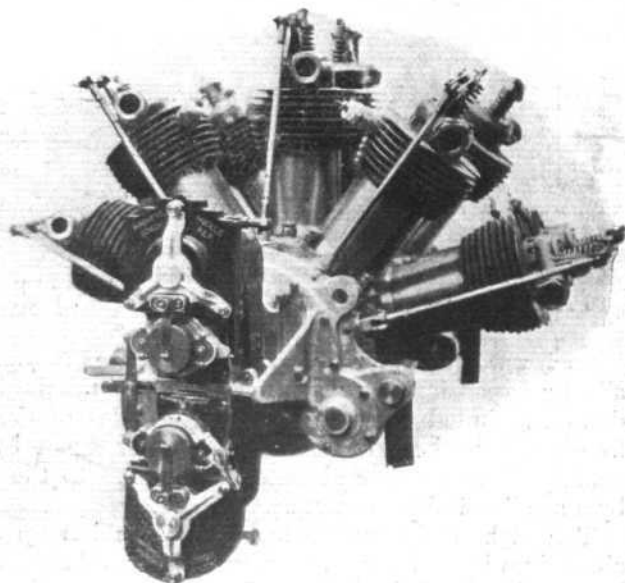
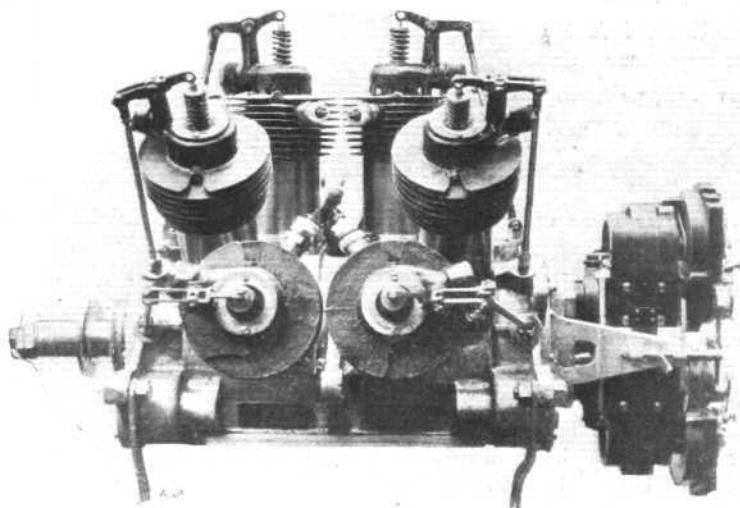
Paris Aero Salon.—Side view of the 8-cyl. Renault aero motor, showing the casing over the fan which induces a draught past the ribbed cylinder walls.

through the inlet-valve orifice ; the inlet-valve itself being in a cage. The cylinders are fixed to an aluminium base by detachable lugs. Inside the base, but in a separate compartment to the crank-chamber, is the water

pump and the carburettor mixing chamber; the carburettor itself is outside. The valve push-rods are operated by a cam-ring in the crank-chamber, and the propeller-shaft is driven by bevel gearing. The cylinders lie in one plane.

R.E.P.

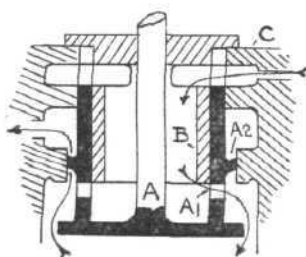
Three models, having the same bore and stroke, complete the standard range. They have 5, 7, and 10 cylinders for powers of 20, 30, and 40-h.p. respectively.



PARIS AERO SALON.—Two views of the 10-cyl. 40-h.p. R.E.P. Engine. The valves in the cylinder-heads control the inlet and the exhaust.

All are designed on the same principle (see *The Automobile Journal*, November 30th, 1907) with radial cylinders set in two planes upon a semi-circular base. The 10-cyl. engine, which is virtually two 5-cyl. engines in line, has four planes of cylinders, and there are cam-rings at each end of the crank-shaft.

The induction and exhaust-valves are formed in one, and the exhaust-gases escape direct into the atmosphere through perforations in the valve-chamber walls.



The valve in question is illustrated by the accompanying diagrammatic sectional sketch, and consists of a peculiar-shaped hollow piston, A, operated by a central stem and having a port, A¹, and an external lip or ridge, A².

The piston works between a fixed internal sleeve, B, and the outer valve-chamber casting, C. The arrows show the direction of the gases, those on the right indicating the path of the fresh mixture and that on the left the path of the exhaust. When both valves are closed, the flanged head on the bottom of the piston comes up against the seating on the valve-casing, which thus takes the pressure direct during the explosion stroke.

J.A.P.

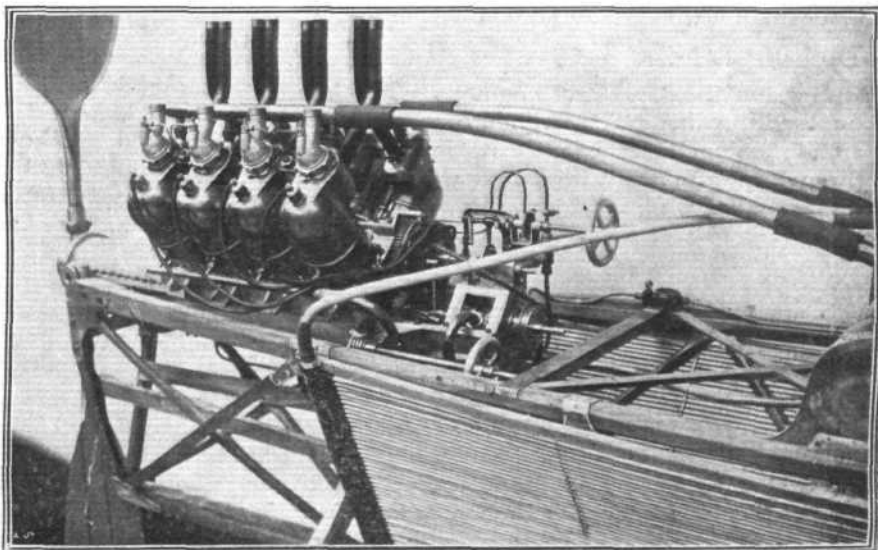
British-built 8-cylinder V engine. The cylinders are made of cast iron, and are air-cooled by perforated fins. The base is made of aluminium, and supports the cam-shaft outside between the cylinders. All valves are operated mechanically.

Antoinette.

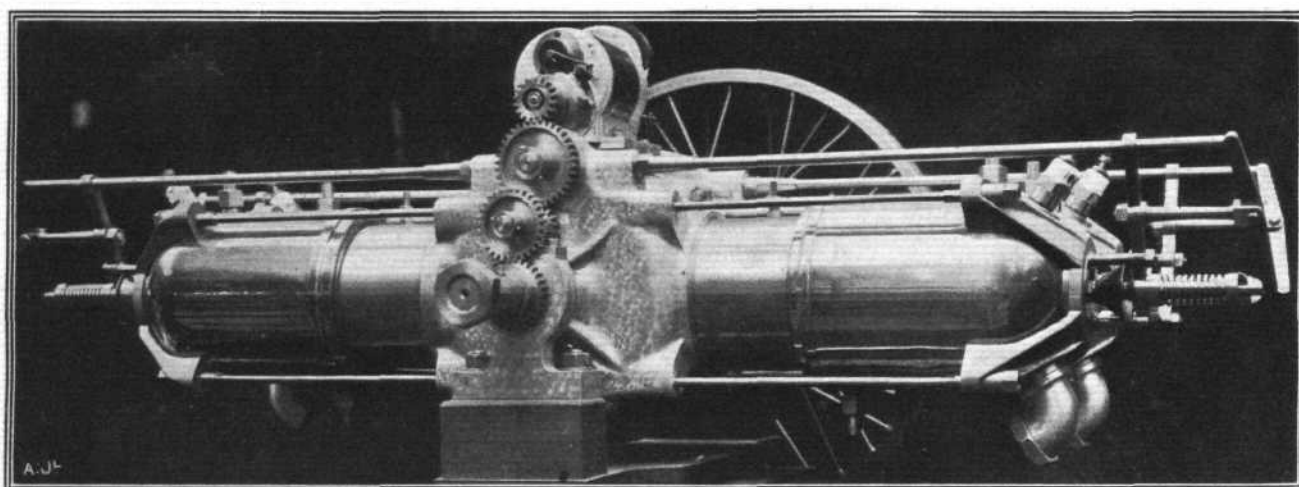
The manufacturers are specially building this year, for aeroplanes, a 50-h.p. installation which is the same as is used in their own monoplane. It is peculiar for the system of "steam-cooling" that has been adopted; the water being allowed to boil in the jackets but being subsequently condensed. Twelve litres

of water are carried in a small cylindrical tank and the water is pumped through the jackets, where it becomes more or less converted into steam by the time it returns to the tank; the jackets are electrolytically deposited in copper. Only the exhaust-valves are mechanically operated, the induction-valve is atmospheric.

On one end of the crank-shaft is the propeller, and on the other is the water-pump. The cam-shaft is driven by exposed gears and drives the fuel-pump which injects petrol into each induction-valve chamber. The fuel-pumps (there are two) have a variable throw by means of an eccentric mechanism. Accumulator ignition is employed in conjunction with a distributor mounted between the cam-shaft and fuel-pump.



PARIS AERO SALON.—View of the Antoinette installation, showing part of the condenser used to convert into water any steam which is formed in the cylinder-jackets.



PARIS AERO SALON.—View of the 4-cyl. Dutheil-Chalmer Aero motor, which has its cylinders opposed in pairs.

Such water as is turned into steam passes automatically by expansion into a large aluminium tubular condenser, mounted longitudinally in the sides of the car frame, and is there converted into water again by air cooling. The condensed water is returned to the tank by a small belt-driven pump.

The eight cylinders are arranged V fashion upon an aluminium base-chamber, to which they are fastened by loose yokes at their flanges. They are made of forged steel, and are in one piece with their heads and valve-chambers.

Anzani.

Three-cylinder air-cooled engine, built on the Anzani motor bicycle engine lines, with radial cylinders set close together in one plane. The cylinders are made of cast iron and have perforated fins for cooling. The atmospheric inlet-valves are placed over the exhaust-valves.

E.N.V.

Eight-cylinder V water-cooled engine with electrolytically deposited copper jackets. No special attempt has been made in this engine to depart from proved principles in respect to valves, &c., for the sake of lightness, and it therefore has a more substantial appearance than many aviation motors. A special feature—the subject of a patent—is the shape of the joint between the jacket and the casting at the lower end of the cylinder.]

Dutheil-Chalmer.

Horizontal 4-cylinder engine, with the cylinders opposed in pairs. The cylinders are held in place on an aluminium base-chamber by long bolts which pass through lugs on a cast-iron yoke, which forms a cap over the cylinder-head. This engine is installed in the Pischoff aeroplane.

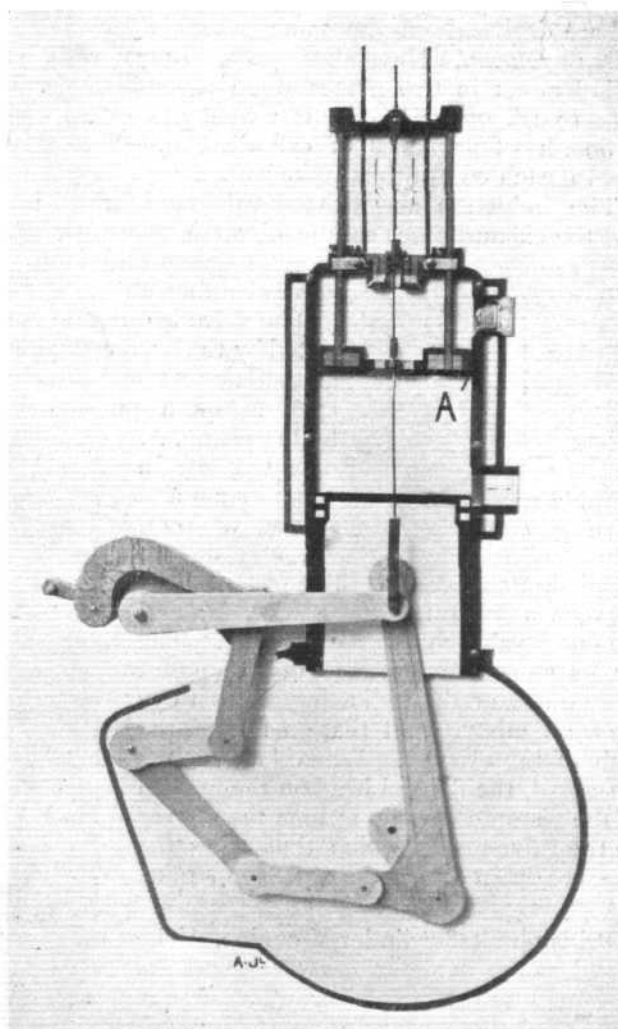
De Korwin.

Six-cylinder semi-radial air-cooled engine, constructed by Buchel, and fitted with a mechanically-operated distributor in the mixing-chamber. The cylinders are mounted in four planes upon a semi-circular base. The object of the distributor is to isolate the induction-pipe which is in action at any moment from those which are idle and thus to obtain a greater suction on the jet; an advantage of 10 per cent. is claimed for the arrangement.

De Korwin "trois temps."

Model of an engine which completes its cycle in one revolution, and gives complete positive scavenging and fixed compression with a variable charge, without any

supplementary external pumps. It belongs to the four-stroke category, but is called by the inventor "trois temps," because the cycle is divided into three periods: (1) explosion; (2) exhaust and suction; (3) compression and transference of charge. These operations are all performed inside the working cylinder by the aid of a false head, which is caused to descend after the piston, when the latter has uncovered the exhaust-ports at the end of its working-stroke. The false head, which is in effect a second piston, scavenges the gases



PARIS AERO SALON.—Photograph of a sectional working model of the De Korwin "trois-temps" engine, showing the false head, A.

absolutely, and draws in a fresh charge between it and the cylinder-head proper. It returns with the working piston in the subsequent period, but travels slightly further in the same time, and thus re-establishes the combustion-chamber for the next explosion. The gases are simultaneously compressed, and automatically enter the combustion-chamber through an atmospheric-valve. The induction-valve proper, in the cylinder-head, is also atmospheric. The new charge does not come in contact with the exhaust, it will be noticed.

Although a very clever idea, such an engine would need extensive trial to be proved effective, for it makes great demands on some of the moving parts. The false head or piston accomplishes a full stroke in about one-third of a half revolution of the crank-shaft, or about three times as fast as the piston proper. It is operated by links and rods which must be strong enough to take the reaction of the explosion pressure and light enough to enable the head to travel at the speed mentioned. Also the mixture must enter the cylinder at three times the normal speed. The link motion, too, is extensive, and the leverages necessary to produce the velocity are the opposite to what would be best suited to give the greatest rigidity under load.

Gobron.

Stationary vertical 8-cyl. radial engine arranged with the cylinders in pairs, so that the formation is that of an X instead of an eight-pointed star. Each cylinder has two pistons working in opposite directions, but coupled to the same crank-shaft after the usual Gobron practice. An innovation in this design, however, is the use of a special cam-plate for operating the valves through inclined rock-shafts instead of push-rods. The engine is fitted with two magnetos, and the arrangement is such that it can run as a 4-cyl. engine in emergency. The cylinders are made of cast iron, and have brass water-jackets; the crank chamber and the casing for the outside connecting-rods belonging to the extra pistons, is made of aluminium. A great feature is made of the fact that this engine may be used with any standard radiator, and will operate under ordinary flying conditions without getting overheated. This engine was shown on the Breguet stand, and it is interesting to know that some of the new Breguet aeroplanes will in all probability have Gobron engines. Messrs. Gobron have also sold a number of these engines to different experimenters, and one is coming to England, where, of course, there is already a Gobron agency.



MONACO FLIGHT COMPETITION.—General view, taken from above Monaco, of the "Course" for the aeroplanes, which have to start from the new quay at Monaco, fly over the entrance of the harbour (centre of picture), from which point the official timing takes place on the outward flight, and again on the return flight, after having rounded Cap Martin, seen in the distance. To the left of the harbour, in the centre of the photograph, will be noticed Monte Carlo Casino Tir des Pigeons, &c., in front of which the motor boat races take place annually.

NEWS OF THE WEEK.

The Wrights at Pau and an "Incident" *en route*.

WILBUR WRIGHT arrived at Pau on Thursday of last week, January 14th, and his brother, Orville, with his sister, Miss Katherine, travelled down from Paris on the following day, as also did Wright's two mechanics, Lovelace and Lachapelle. The train in which Orville Wright and his sister were travelling came into collision with another train, and was very badly wrecked, but once again Orville Wright escaped with his life, and this time happily without injury; in fact, he and his sister were only delayed for a matter of five hours in reaching their destination. Installed in his new quarters, which are a lot more comfortable than those at Le Mans, Wilbur Wright is now busy assembling his aeroplane. It is not expected that any flights will be undertaken much before February 1st.

Wilbur Wright lives in his aeroplane shed, as he has done ever since he came to France, and is thereby enabled to keep zealous guard over his treasures. In the meantime, the A.C. de Bearn is making arrangements for the convenience of visitors and is seeing what can be done in the way of organising a suitable service of vehicles to and from the *Landes*, a distance of about 7 miles out from Pau. It is probable that a reserved enclosure will be marked off, for which an entrance fee will be charged. Orville Wright and Miss Katherine are staying at the Gassion Hotel.

The Wright Interests in America.

MR. HART O. BERG has sailed for New York, in order to consult with one of his *confrères*, Mr. Flint, on

the subject of the exploitation of the Wright patents in America. He is expected to remain in the States about a week.

Wright's Royal Pupil.

ACCORDING to rumour, it appears likely that Wilbur Wright may have the honour of numbering royalty among his pupils, the King of Spain being, it is said, most desirous of learning to fly, and is, in fact, already in possession of two aeroplanes which he is, however, unable to use. It is even said that King Alfonso will go to Pau for his tuition.

The Division of the Spoils.

AN amusing and very characteristic little incident took place at a luncheon which M. Michelin gave to the Brothers Wright, Mr. Hart O. Berg, and M. Clauss at the French Automobile Club last week. The occasion was made an opportunity for handing over the Michelin Prize of 20,000 francs, the auspicious moment being reserved for the arrival of dessert. M. Michelin rose, and in a suitable speech made the presentation, which came as an agreeable surprise to those present; Wilbur Wright having expressed his thanks, calmly divided the notes into two packets, and without a word handed over one of them to his brother, while he put the others in his own pocket. The little act, done without ostentation and in the most natural manner possible, served to emphasise beyond anything that has yet taken place, the real partnership which exists between these two Americans as a result of their long years of pioneer labour.

New Wright Patents.

IT is reported from New York that the American Patent Office has granted a patent to the Brothers Wright on the subject of a new rudder for airships. There is also a rumour to the effect that an interesting development is likely to take place in the method of starting adopted in connection with the Wright machine, and that a patent has been taken out to cover a system which will do away with the pilone and the rail.

Jorch Aeroplane.

IT is reported from Berlin that the Jorch aeroplane has made a successful trial "flight" of 19 metres.

Delagrange to use a Wright Aeroplane.

IN order to extend his knowledge of flying machines, M. Delagrange has ordered one of the Wright type, with which he intends to experiment at Pau; meantime he is continuing his trials at Juvisy.

Bleriot goes to Pau.

PAU is the aviation centre of attraction just now, as is only natural, for apart from its natural advantages in the way of open moors, and the fact of Wilbur Wright having made it his chosen ground, there is its fine climate, which materially affects flight experimental work. Among others, M. Bleriot recently paid a visit there, and, as a result, now also contemplates installing a shed on the moors. At Issy, M. Bleriot tried to effect some flights on Monday of this week, but the ground was in a most unsatisfactory condition for starting, and the wheels of his machine were damaged.

Vendome Trials.

A CERTAIN amount of success attended the efforts of M. Raoul Vendome and his monoplane in trials



Wilbur Wright (on the right), Orville Wright, and their sister Katherine in Paris immediately after the arrival of the two latter from America.

which were carried out at Bagatelle on Saturday, January 16th.

Thezenas Aeroplane.

Two inventors, MM. Thezenas and Renaud, have constructed an aeroplane of the biplane type, but unfortunately have, it is stated, insufficient money to instal an engine. In consequence they recently gave a demonstration to the French Press, in the hope of interesting someone on their behalf, by showing how the whole machine is taken to pieces.

Faccielli Aeroplane Damaged.

DURING the course of experiments at Turin, Signor Faccielli's machine met with an accident which might have had very serious consequences. He had just succeeded in flying a distance of 100 metres at an altitude of 7 metres, when something went wrong with the supports for the rudder and elevator, so that the whole apparatus suddenly capsized and fell to the ground. The pilot, who is the son of the inventor, was picked up safe and sound.

Honours for Aviators.

THE French Government has now officially decided to recognise notable work in the field of aviation by the creation of one Commander, one Officer, and sixteen Chevaliers of the Legion of Honour. These honours are reserved for gentlemen of French nationality, and will be divided among those who are developing flight and those who took an active part in the organisation of the first International Road Congress. For the moment it would seem that Wilbur Wright and Henry Farman, not being of French nationality, may be left outside the roll of honour after all, but possibly some way will be found out of the difficulty.

Henry Kapferer Decorated.

IN the meantime, Henry Kapferer has received a Cross of Honour from the Minister of War for his experiments in aeronautics, conducted while serving as a sub-lieutenant in the Army.

Vandenberg Flapping Wing Machine.

IT is reported from Brussels that a resident of Antwerp, M. Vandenberg, has built a flapping wing machine weighing 600 kilograms.

Trials will shortly be made with this machine on the military parade ground at Antwerp; specially good starting effects are, of course, expected to result from the principles embodied in the design. Belgium will thus shortly have exponents of each school—aeroplane, helicopter, and flapping flight.

Orbe Aeroplane.

A BIPLANE constructed by M. Orbe came to grief at Issy les Moulineaux on Monday, January 18th, during the course of the inventor's experiments.

British Army Aeroplane.

ON Wednesday morning the Army aeroplane was given a trial on Farnborough Common, and although Mr. Cody succeeded in making the longest flight he has yet accomplished, the experiment ended in disaster. After flying for 250 yards, the lifting plane apparently came adrift, with the result that the machine fell suddenly to earth and was wrecked, Mr. Cody fortunately escaping serious injury.

The mishap can hardly be attributed directly to any fault in the construction, because it was primarily due to the absence of sufficient room in which to come to earth. Mr. Cody had been getting along very nicely for a matter

of 300 yards or so, and had attained an altitude of anything up to 30 ft. At this point of the proceedings, however, the edge of the common hove in sight, and very naturally Mr. Cody decided to bring the machine down to earth at once. He was then so close to the edge, however, that a gliding descent at a natural angle was out of the question, and the only thing to do was to use the elevator for coming to earth, a proceeding which has probably never been attempted by even the most expert of pilots. Adding a direct wind pressure in this way to the dropping force of gravity caused an extremely rapid descent, as was only to be expected, and again, as was only natural, Mr. Cody hastily tried to check the fall by tilting the elevator for a rise. This in turn created a sudden reversal of strain, which, as even the least mechanically minded know, is the severest kind of a test for any sort of framework. The bamboo outriggers carrying the elevator gave way at the same moment that the machine was beginning to respond to the action, and, of course, so soon as the elevator itself had thus come adrift, the machine was completely out of control, and at once toppled to the ground. The final fall was considerable, the height being estimated at about 20 ft., but in spite of this Mr. Cody was uninjured, and the aeroplane, although it looked a wreck, not so very much the worse for its impact. The engine, at any rate, was unharmed, as was shown by the fact that it was at work again the same evening.

Taken on its merits, the flight must undoubtedly be regarded as an advance on previous attempts, and it is, as we have already mentioned, only fair to look upon the mishap as being mainly the result of inexperience.

British Army Funds.

PROGRESS with the British army aeroplane cannot very well be other than moderately slow when the authorities at work upon it are so hampered for funds, and it is impossible to reconcile two attitudes which are sometimes taken by the same section of the general press, of making invidious comparisons with our progress in military aviation, as due to relative inability, and lamenting the Government's lack of support to this section of the army. Experimental work of every description must always cost money, and pioneer work especially may cost an unlimited amount; it is entirely unreasonable to expect Colonel Capper and his men to advance more rapidly than they are doing at present. The Budget vote for the balloon section of the British Army to cover the present financial year was only £13,750, and but a fraction of this can, of course, be spent on aeroplanes. That it is inadequate may be judged from the fact that in 1905 and 1906, when other countries had not taken the interest in military aeronautics that they have done since, the vote was for a larger amount. It does not behove England to be too apathetic in its regard of the conquest of the air, for the central blue is, unfortunately for us, a sea in which there are no islands, or conversely, it may be regarded as a sea in which the largest lands are the largest harbours for an aerial fleet.

Moore-Brabazon's Success.

PROGRESSIVE success is attending Mr. Moore-Brabazon's essays in France, where he is experimenting at the Chalons Camp. On Sunday of this week, January 17th, he made three ascents, and flew a matter of 500 yards each time at an average altitude of 20 ft. Thus encouraged, he decided upon an important advance on Monday, January 18th, which was no less than to attempt his first turn in the air. Starting close to his

shed in the face of a fairly brisk breeze, he was soon aloft, and after travelling for some 800 yards he successfully made a turn and flew back to his starting point, accomplishing altogether a flight of about 1,500 yards. Subsequently, he made no fewer than seven other flights, covering distances of about a mile and a half, at heights of from 20 to 25 ft. No wonder Mr. Moore-Brabazon was pleased with his day's work.

Moore-Brabazon on English Soil.

At last it seems probable, if report be true, that we shall have an Englishman carrying out his work on English soil, for it appears that Mr. J. T. C. Moore-Brabazon proposes to abandon his trials in France with a view to seeing what can be done in this country. His immediate experiments are to be conducted in Lord Carnarvon's private park at Highclere Castle, near Newbury, where a shed has already been erected.

Rolls-Royce and the Army Aeroplane.

THE close association between the automobile and the aeronautic industries has received a further tie in the fact that Messrs. Rolls-Royce have been entrusted with the construction of the framework of the new Army aeroplane. The frame has been designed by the War Office, and will be made of special weldless steel tubing, having joints formed by the oxy-acetylene welding process without the use of ordinary lugs.

The Aerial League.

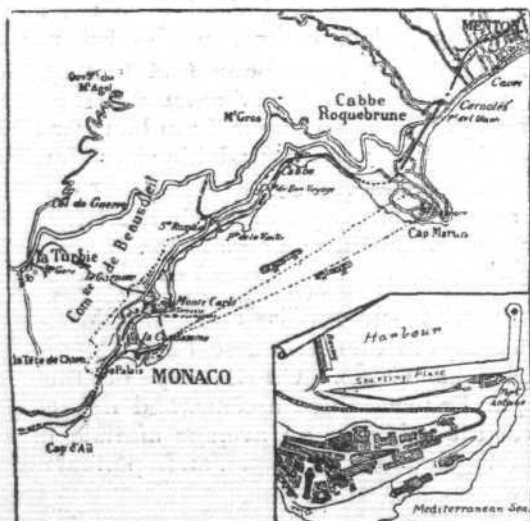
UNDER this title there has been formed an association which its founders anticipate shall take the same position with regard to aerial defence as the Navy League does in affairs maritime. The Hon. Secretary is Mr. Stephen A. Marple, A.M.I.M.E., and the temporary address is Staple Inn Buildings, High Holborn, W.C. Colonel H. S. Massy, C.B., has signed the letter to the press announcing the formation of this body.

Michelin Cup Rules for 1909.

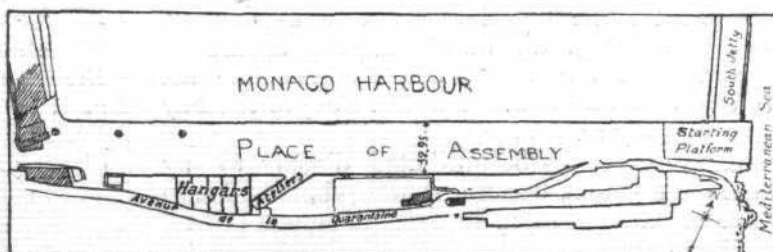
UNDER the terms of the Michelin Cup, the A.C. de France have, prior to the 31st of January in each year, to issue a general programme indicating the lines on which the cup may be competed for during the ensuing year. The rules for 1909 have just been issued.

1. The winner will be the pilot of the flying machine who flies the greatest distance exceeding 123.2 kiloms. in a closed circuit before January 1st, 1910.

2. Entries must be made in writing before 4 o'clock in the evening on the previous day, and additional notice must be given to the extent of twenty-four hours for every 1,000 kiloms. or part thereof that the scene of the trial is distant from the headquarters of the supervising club. The entry fee is 50 francs on each occasion, and covers the whole day of the trial.



MONACO INTERNATIONAL FLIGHT COMPETITION.
Sketch map of the course for the aviators from Monaco to Cap Martin and back, together with enlarged plans showing the position of the proposed starting place, and the details of the place of assembly, &c., on the New Quay.



3. The course will be marked out by three or four poles, and no side must exceed 2 kiloms. in length. Competitors must pass the mark posts successively and in the same order, always outside them and without touching them. The start which counts for the records will be timed from the passing of the first post in full flight, and the termination of the record will be the time of passing the last post in full flight.

An official must be stationed at each post.

The winner for 1909 will receive the same prize as Wilbur Wright has done for 1908, viz., 20,000 francs, and a bronze replica of the Michelin trophy. It will be noticed that an original condition of the Michelin prize, to the effect that the distance covered each year should be at least twice that of the preceding record, has been discarded.

Falize Prize Increased.

THE Falize Prize of 1,000 francs has now been increased to 3,000 francs, the conditions remaining unaltered. They are, as our readers know, that the prize shall be awarded to the aviator who first flies from the Invalides to the Vendome Column, and returns to the starting point *via* the Arc de Triomphe.

"L.M.A." Prize.

M. GUSTAVE CHAPON, Treasurer of the Ligue Meridionale Aérienne, has offered a prize of 1,000 frs. for the pilot of the first aeroplane who flies in the Gironde country. The aviator in question must give due notice to the Committee, but the competition is apparently intended solely for the purpose of attracting some flyer to the district, as it is only necessary to fly 100 metres in order to win it.

M. Pelterie on "Aviation."

M. ESNAULT PELTERIE, having recovered from his recent indisposition, has now arranged to give his lecture on "Aviation" before the members of the Aero Club, on Tuesday next, at 8.45 p.m., at the Royal Automobile Club, 119, Piccadilly, W. The opportunity of hearing this distinguished and successful French aeronaut should be sufficient to ensure a very large attendance.

The Student Pilots.

HARDLY has the Association of Student Pilots been formed by the Ligue National Aérienne, than it already numbers 420 members, and is expecting the immediate delivery of a full-sized Voisin aeroplane for its experiments. As soon as this is delivered, they will commence their trials at the Aerodrome at Juvisy, which in France is now commonly known as "Porte Aviation."

Monaco Meeting.

THE International Aeronautic Meeting at Monaco opens to-morrow, Sunday, January 24th, and closes on March 24th. During this period entrants for the great aeroplane prizes will be at liberty to do their best to fly from the Quay round Cap Martin and back again. So little time has there been between the conception of the idea and the date of opening, that the committees were only formed last week. His Serene Highness Prince

Albert of Monaco is the President of Honour, and among the names of the patrons are included well-known representatives of the leading countries. Among those from France are Messrs. Deutsch de la Meurthe, Marquis De Dion, Count de la Vaulx, Baron de Zuylen, Rene Quinton, Count Castillon de Saint Victor and Ernest Archdeacon, while Mr. Roger Wallace and the Hon. C. S. Rolls represent England. Professor Busley looks after the interests of Germany, and Italy has among others Prince Scipio Borghese, of Pekin-Paris fame. Belgium is represented by M. Jacobs and Baron de Crawhez, while Austria-Hungary is represented by the President of its Aero Club, M. Silberer. The executive committee is under the presidency of Camille Blanc, and M. Georges Prade is secretary.

Work is going forward apace to prepare the quay so that it can form a suitable starting place, and a great deal of timber has been laid down to form a flooring. Sheds are being erected for the housing of competitors' machines, and generally everything is being done that can make matters a success. Unfortunately the fact remains that most of the leading aviators of the day have not sent in their entries. Wilbur Wright is the only pilot of them all who on actual experience would have a reasonably fair chance of carrying off the prize without special practice, and it looks as if his work at Pau will keep him occupied until he goes to America.

Henry Farman has not entered, yet he stands next to Wright in his achievements, nor has M. Bleriot, who is beginning to meet with considerable success with his monoplane. M. Delagrangé is, in fact, the only pilot of note among the list of entrants. During the three months that the event is open, much may, of course, take place, but whether anyone will be found with the pluck to take the leap off the veritable "diving board," which is being erected on the Monaco Quay, is a point on which there is every reason to have doubts. The presence of the sea constitutes a none too pleasant factor in the performance which has to be undertaken to gain the prize, and the available room on the quay itself for starting and landing is cramped, to say the least of it. Except for these two details, and the altitude of Cap Martin, there is, however, nothing out of the way in the competition itself.

Two sheds, 12 metres wide, have already been fitted, and two more, 15 metres wide, are in course of erection.

The starting track will measure 400 metres in length, and terminate in a slope from which the flying machines will "take off" on their flight.

Nice Meeting Abandoned.

OWING to the impossibility of finding a suitable aerodrome, the aeronautical meeting at Nice, which was being organised by the Nice A.C. with financial assistance from the municipality, has been abandoned.

Belgian Aero Salon.

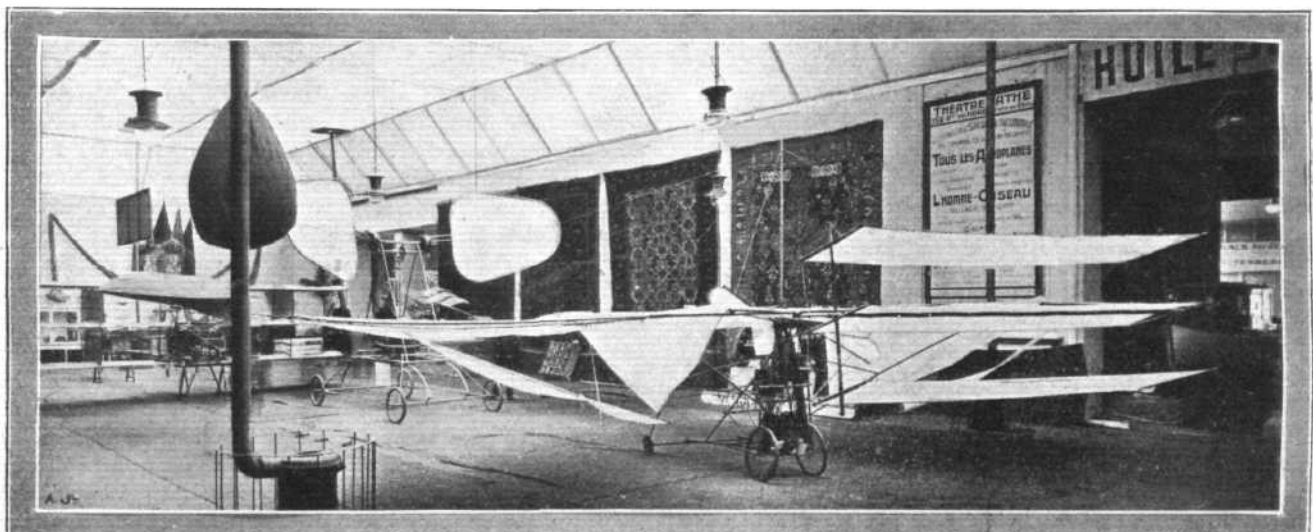
At the Eighth Annual Automobile Show in Belgium, which opened on the 16th and closes on the 26th of this month, aeronautics plays a fairly prominent part. There are one or two full-sized machines on view, including Baron Jean de Crawhez's aeroplane, the triplane with which Baron de Caters has been experimenting, and the Hault orthoptère. Numbered among the aeronautic exhibits are several engines, including the Clement and Gnome. The majority of the exhibits in this section are, of course, small models.

The Aeronautical "Chair."

THE establishment of a Chair of Aeronautics at Gottingen University—to which we referred in our last issue—was, it is now stated, made possible by the action of the Motor Airship Study Society, who have contributed to the expenses, and by the Prussian Ministry of Education who have granted a substantial subsidy. Captain Von Kehler, who is a director of the first-mentioned body, views the founding of the professorship with much enthusiasm. He considers that the course will attract a large number of students, for Professor Prandtl will deal with aeroplanes as well as airships, and with the history of the movement as well as the science of the machines.

Aeroplane Demonstration in Germany.

OUR enterprising contemporary the *Lokal Anzeiger*, inspired with a spirit for increasing the German interest in flying machines, has arranged a series of demonstrations on the Tempelhof Parade Ground, near Berlin, to commence on January 28th. It is stated that Messrs. Voisin will be represented by M. Zipfel with one of their machines.



BRUSSELS MOTOR SHOW.—General view of the flight section. In the foreground is M. Jean de Crawhez's aeroplane, and immediately behind is the orthoptère of M. de la Hault, both Belgian machines.

The Zeppelin Airships.

CONSIDERABLE activity is now taking place in the construction of Zeppelin airships by the Luftschiffbau Zeppelin Gesellschaft, which is the society formed to undertake the practical work in connection with the vast fund which was subscribed by the German nation for the purpose of equipping an aerial fleet. This fund, as our readers know, amounted to over 6,000,000 marks, and was brought up to a total of nearly 9,000,000 marks by a Government grant. Most of the active work is under the supervision of Count Zeppelin's nephew, Count Ferdinand, who is assisted by two engineers, Messrs. Dury and Kober. At the present time the L.Z.G., which has its works at Manzell, is employing 90 men. Friedrichshafen, which was the starting point of all the Zeppelin trials, has become the military airship station with a numerical strength of "three"—Zeppelins I, II, and III.

There is a rumour about that the German Government regards the Zeppelin principle with less favour than formerly, on account of possible difficulties, as we have already mentioned, associated with the use of wireless telegraphy on a machine which has such a vast aluminium framework. It does not appear at the present time, however, that there is any official foundation for this rumour, and Count Zeppelin himself has stated that no tests have been made.

Spare Envelopes for German Airships.

THE German War Office has no intention of being deprived of the use of its Parseval and Gross airships by any mishap such as that which occurred to the former during last September, as they have now put in hand the construction of spare envelopes for both machines.

Another Aerial Transport Company.

THE possibilities of aerial transport as a commercial venture are apparently most alluring to a very large number of people, for already a number of companies have been formed to exploit the principle in a practical manner. The latest has sprung into existence at Dusseldorf, and is said to have been founded by the co-operation of the municipal authorities with a number of leading Rhenish-Westphalian merchants. Application has been made to the Ministry of the Interior for a concession in respect to the establishment of a line between Berlin and Dusseldorf.

Clouth Airship.

MESSRS. CLOUTH, manufacturers of rubber fabric at Cologne, have in hand the construction of an airship of the semi-rigid type, which, it is stated, has already been sold. The trials are expected to take place in the spring under the control of M. Richard Clouth, a son of the Director.

Russia Orders a Lebaudy.

MESSRS. LEBAUDY are constructing at their Moisson factory a dirigible for Russia which is an absolute copy of the French "Republique."

Russian Aerial Fleet.

RUSSIA is apparently anxious to acquire a thoroughly useful aerial fleet, whether of airships or aeroplanes, as the case may be, and collections are, it is stated, to be made throughout the empire with a view to raising the necessary funds. The initial subscriptions in St. Petersburg already amount to £500. The Russian Aero

Club is taking an active interest in the practical side of the work, and intends to buy some Wright machines and form a school of aviation.

The "Liberté" Nearly Ready.

FRANCE'S fourth dirigible, the "Liberté," which was placed on order in the early part of August last, is under construction at the Lebaudy factory at Moisson, and as the work is being pushed forward quickly, it is expected to be ready in June. The envelope will have a cubic capacity of 4,200 cub. metres, will be 67 metres long, and 10.8 metres at its maximum diameter. The car will be equipped with a 135-h.p. Panhard engine.

"Wireless" Airships.

AN inventor in America, Mr. Mark O. Anthony, is said to be able to control airships from land by the aid of wireless telegraphy, and is, it is said, organising a demonstration with a view to bringing the matter before the public.

E. J. Pennington Enters the Aeronautic World.

THOSE who knew that master of "high finance" when he electrified this country with his extraordinary schemes, will not be surprised to hear that Mr. E. J. Pennington has a project afoot in the aeronautic world, for they will recollect that he had ideas in this direction even before motor cars attracted him. His latest scheme is being (thank goodness) fostered in America, where it is said that a company with a bagatelle of 50 million dollars as capital—known as the Aerial Navigation Co. of America—is being organised to build "Pennington" airships. The work is to be conducted on Staten Island, and each airship is to be 700 ft. long and to be capable of carrying 100 passengers.

Mr. Lewis Nixon, one of the organisers of the company, it would appear, has been appointed, or has appointed himself, chief engineer and consulting expert.

London to Manchester by Aeroplane.

IN the February number of the *London Magazine* Mr. Wilbur Wright gives some interesting points regarding the flight from London to Manchester which will have to be made before the *Daily Mail* prize of £10,000 is won. Mr. Wright believes the prize will be won, but he regards it as practically certain that it will not be won at the first attempt, and it may not be won at the tenth attempt.

With regard to speed and altitude, Mr. Wright inclines to the belief that the best speed for human flight should be a little greater than that of birds, while the height would also be greater. Should the motor stop the aeroplane must descend at the rate of at least 1 foot for each 8 ft. it moves forward, so that it would be necessary to rise to sufficient height to enable the machine to glide to a suitable landing place. From a height of half a mile it is possible to land on any spot within a radius of four miles, while from a height of one mile the possible landing area would be 200 square miles. Mr. Wright expects that the successful flight from London to Manchester will be made at a height of 1,000 ft. or more. It is usual to associate height with danger, but this is only true within certain limits and may be considered as analogous to the old idea among sailors that it was not safe to venture far from the land, just as aviators do to-day, but once certain limits are passed sailors prefer the high seas, and aviators will prefer the "higher atmosphere of heaven" for long flights.

AERO CLUB OF THE UNITED KINGDOM.

166, PICCADILLY, LONDON, W.

OFFICIAL NOTICES.

Lecture by M. Robert Esnault-Pelterie.

M. Robert Esnault-Pelterie, of Paris, who was unable through illness to come over on the 12th inst., has now promised to give his lecture on Aviation, with cinematograph illustrations, on Tuesday, the 26th inst., at 8.45 p.m.

The Committee of the Royal Automobile Club have kindly placed their premises, 119, Piccadilly, W., at the disposal of the Aero Club for this occasion.

Members of the Aero Club, who are not members of the Royal Automobile Club, are requested to apply to the secretary of the Aero Club for tickets of admission.

Owing to the rules of the Royal Automobile Club, the lecture will not be open to lady members.

The Aero Club League.

It is gratifying to record the success that has attended the formation of the Aero Club League. During the last week applications for membership have been received from all over the country. Full particulars of the advantages of the league are set out in the advertisement pages.

The Aeroplane Trial Grounds.

The Committee of the Aero Club of the United Kingdom have now practically concluded arrangements for the acquisition of extensive trial grounds for aeroplanes and for experimental work, full particulars of which will be shortly announced.

Extraordinary Conference of the

Federation Aeronautique Internationale
held in London on January 11th and 12th, 1909.

FURTHER RESOLUTIONS PASSED AT THE CONFERENCE.

The Modification of the Basis of Representation of Aero Clubs on the F.A.I.

ARTICLE 15 of the Statutes of the F.A.I. is modified as follows:—

Each country represented at the Conference will be entitled, according to its importance and its measure of aeronautical activity, to a certain number of votes, to be decided at the same time as the club is officially admitted. For any country, its colonies and possessions, this number can never exceed a total of 36 votes, or, a quarter of the votes represented at the F.A.I. meeting. The votes will be allocated to the three divisions of aerial navigation:—

1. Free aerostats.
2. Dirigible aerostats.
3. Flying machines.

⊗ ⊗

"Continental" Fabric for Balloon Work.

THE Continental Tyre and Rubber Co. have come to an understanding with Messrs. Short Bros., the well-known balloon manufacturers, and Messrs Short are in a position to manufacture and deliver balloons made of the well-known Continental balloon material. The Continental Tyre and Rubber Co. is now able to give immediate quotations for balloons of 600 cubic metres, 900, 1,200, 1,431, 1,600, and 2,200 cubic metres.

The proportionate representation of each country will be determined as follows:—

1. For free aerostats, according to the amount of gas consumed by the clubs of the F.A.I., in the proportion of one vote for every 25,000 cubic metres.

2. For dirigible aerostats according to their combined net lifting-power. These dirigibles must have covered at least x kilometres during the year.

3. For flying machines, according to the number of machines in each country which have effected a flight under official observation of x kilometres during the year.

The minimum quantity according to which the proportionate representation of votes is established under the two sections, that of dirigibles and flying machines, will be determined by dividing by 12 the maximum number attained under these respective sections by each affiliated country.

In addition, each country, by the very fact of its admission to the F.A.I., will be entitled to one vote in each section.

When a vote is taken in a full session of the Federation on a question exclusively concerned with one of the three branches of aerial navigation, voting will take place on the basis of the number of votes to which each country is entitled in the branch of aerial navigation which is the subject under discussion.

The quantity x , applicable to dirigibles or to dirigible aerostats, is 20 kiloms. in a circuit, the quantity x , applicable to flying machines, is 1 kilom. in a straight line.

The Future Relations between the Aero Clubs and Automobile Clubs of the Various Countries.

The F.A.I. decides that each Aero Club affiliated to the F.A.I. has freedom of action in its own country, and can conclude any arrangement or agreement with any other body provided only that Article 1 of the Statutes, and in particular paragraph 2 ("the F.A.I. only recognises for each country one sporting authority"), is maintained in all its integrity.

In consideration of the special reasons given by the Aero Club de France regarding the private arrangements it has concluded for the year, and after having heard its declarations, the F.A.I. records its complete confidence in the Aéro-Club de France.

The Conference sent the following telegram to Mr. James Gordon-Bennett:—

"The International Aeronautical Federation, meeting in London, addresses its most cordial thanks to Mr. Gordon-Bennett for the creation of the International Aviation Cup."

⊗ ⊗

The fabric used is of the very best, and the most suitable that can be produced at the large Hanover Works.

The Hon. C. S. Rolls' New Balloon.

MR. BRODTMANN, of the Continental Tyre and Rubber Co., informs us that the balloon, "Continental No. 2," which will be steered by the Hon. C. S. Rolls, will in all probability make its first ascent at the end of March. This balloon is made of exceptionally fine fabric, and its capacity will be 1,431 cubic metres.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

THE AERIAL LEAGUE OF THE BRITISH EMPIRE.

To the Editor of FLIGHT.

SIR,—Under this heading an announcement was made last week by Col. H. S. Massy, C.B., stating that "an association has been formed of a national and non-political character, with a view to educating the people of this country as to the immediate necessity for the establishment and maintenance of a similar superiority in the air to that which we now hold on the ocean."

It goes on to say that this League, which is a corollary to the Navy League, shall occupy the same position with regard to aerial defence as the Navy League does in affairs maritime.

To those who are already interested in the subject, and who fully realise its national importance, the formation of this new league will be welcomed as a wise step taken at an opportune moment, for some official interest and action of a definite character is absolutely necessary if England is not to be left far behind other countries in the new, but rapidly developing science of aviation.

The strenuous efforts being made to advance it from a private, sporting and trade standpoint by the Aero Club of the United Kingdom, the Aeronautical Society of Great Britain, and the newly-formed Aeroplane Club, can have little national political effect unless they are met half-way in their suggestions by the authorities; and if the Aerial League can preach this doctrine and convince the British public, by a series of well-organised lectures all over the country that the present lassitude and limited expenditure by the Government is a real menace to national safety, it will accomplish as much as has been attempted by the Navy League in their constant clamour for the maintenance of the "two-power standard" policy.

At the conference of the *Fédération Aéronautique Internationale* last week, it was approved that committees be formed from the affiliated aero clubs, consisting of one military, one naval, and one legal representative, to discuss with the various Governments different questions as to laws and regulations for governing aerial navigation. Whilst the English Government remains in its present torpid state of indifference, there seems but small hope of any such discussion being held in England.

If it be argued that the Army balloon factory at Farnborough is making experiments with dirigible balloons and aeroplanes, these can hardly be attributed to any official demand or encouragement, but rather to the work and enterprise of individuals, without whose personal endeavours and almost unauthorised efforts, England would still be unable to boast the possession of even one Army airship and one aeroplane.

Let it be hoped, therefore, that the new Aerial League may start early on its campaign of instruction and, without in any way attempting to alarm the public, by securing their interest and recognition of our backwardness, together with the real necessity for more activity, stir up sufficient popular support to ensure a more progressive official policy being adopted.

Regarding the above-mentioned bodies, viz., the Aero Club, the Aeronautical Society and the Aeroplane Club, it seems to me that far greater influence would be secured by an amalgamation of the three in one organisation, which could be so managed that the distinct objects of each existing body would be carried out without the present confusion of titles and the almost unavoidable prejudicial effect which they now, quite unintentionally, exercise on one another.

The Aeronautical Society of Great Britain was, I believe, founded as far back as 1866, and its members have always approached aeronautics from a scientific standpoint, arranging lectures of an interesting and instructive nature, and treating the subject more from its theoretical than its practical or sporting side. The Aero Club, the only organisation recognised by the powerful International Federation, which is itself undoubtedly the governing body on aeronautical matters, has filled quite another role, by promoting balloon contests, and by collecting members who take an active, practical, and sporting interest in the subject. With the recent addition of the Aero Club League, the Aero Club is providing, amongst other things, a suitable ground for inventors and experimenters to carry out trials with flying machines, by the payment of a small annual subscription.

The objects of the League appear almost identical to those of the newly-formed Aeroplane Club, and for the existence of both I can see neither necessity nor advantage. On the contrary, it means a division of interests, just when everything possible should surely be done by united membership and united action to aid the advance and progress of the aeronautical movement in this country.

An example of the injurious effects of divided interests is provided by the recent internal dissensions on the point of general control in France, where the feeling has been none too amicable between the

Aero Club, the Automobile Club, and other societies of more recent formation. A temporary settlement of these disputes has been arrived at, but if all the representatives of these various bodies had been enrolled as members of the Aero Club de France, the difficulties could never have arisen.

It is greatly to be hoped, therefore, that we may see in England a combination of aerial interests under one organisation rather than the creation of any more new societies or clubs.

Yours, &c.,

London, Jan. 20th.

HARRY DE LA COMBE.

PRICE OF DIRIGIBLES.

To the Editor of FLIGHT.

SIR,—Can you kindly inform me in your next issue what the cost of dirigibles of the Zeppelin and République, respectively, is?

ENQUIRER.

THAT FRENCH LEAD (?)

To the Editor of FLIGHT.

SIR,—Is a propeller "one of the little details they know more about in France"? (see Mr. Moore-Brabazon's letter in FLIGHT, Jan. 16th, 1909).

Are we to take the propellers fitted to the Farman and Delagrang machines as the last thing in propellers? (1) The blades are extremely small in relation to the thrust. (2) The blades are riveted to the arms, which form a projection on the back, which projections, by the production of eddy currents, must reduce the efficiency considerably. (3) The blades are flat, and throughout their entire length are set at the same angle in relation to the axis, which means that no two parts of a blade are trying to move through or propel the air at the same velocity, which must involve a loss of power.

Sir Hiram Maxim, who has carried out more experiments with propellers than most people are aware of, has found, that in a well-designed and constructed air-propeller, in which the blades are correctly pitched throughout their length, the thrust in pounds multiplied by the pitch in feet multiplied by the revolutions per minute, corresponded almost exactly with the foot-pounds of energy imparted to the propeller. It would be interesting to know how this little sum works out on the Farman and Delagrang propellers. Maxim found that a propeller made after a French model gave only 40 per cent. of the efficiency of one of his own.

It is noticeable that Mr. Wilbur Wright's attempts at records have been terminated by nightfall, some defect in his engine or transmission-gear, or the establishment of a new record.

Wright's record stands at 1h. 54m. 53³/₈s. The best French record stands at 44 mins. 32 sec. by Farman.* Is it possible that the French engineers have not succeeded in making an aeroplane engine which will run as long and as well as that of the two American cycle builders?

In this letter there is no attempt to belittle the efforts of the French experimenters—every praise is due to them, and I am sure that no well-balanced Englishman will begrudge his favours—but there is already a decided tendency to force the impression that the Frenchman is so far ahead that we are entirely out of the running, whereas the actual fact is, that they get more support and enthusiasm from their compatriots at large, and, consequently, the results of their work is brought into greater prominence than would be the case under other circumstances.

Yours faithfully,

Bristol, Jan. 17th.

G. H. CHALLENGER.

[* Mr. Henry Farman is an Englishman.—ED.]

WEIGHT OF THE WRIGHT MACHINE.

To the Editor of FLIGHT.

SIR,—In your issue of January 9th, an item of news on page 24 reports the weighing of Wilbur Wright's aeroplane, giving the weights as 364 kilogs. (= 801 lbs.) for the machine and 71 kilogs. (= 156 lbs.) for Mr. Wright, or a total of 957 lbs. In the comparison of the Wright and the Voisin flying machines by F. W. Lancaster, the weight of the Wright machine and aeronaut was given as 1,100 lbs. The discrepancy, a difference of 143 lbs., is serious to anyone who wishes to obtain a fairly accurate estimate of the powers and efficiency of the various types of flying machine. Perhaps Mr. Lancaster or your correspondent in France could explain or reconcile the two statements.

Allow me to express my thanks to you, Sir, for having, in the past, given so much attention and devoted so much valuable space in *The Automotor Journal* to this fascinating subject of flight.

I send enclosed herewith subscription to FLIGHT,

And beg to remain,

Burnley.

Yours truly,

AQUILA.

PROGRESS IN FLIGHT.

To the Editor of FLIGHT.

SIR,—It was with sympathetic interest that I read the letter of Mr. Humphry, in your issue of the 9th inst., relating his trying experience in ordering propellers from the French firm, Voisin Frères, "whose great facilities and vast experience" have been so "boomed" and belauded.

As Mr. Humphry's experience of their methods is not the only instance that has come to my knowledge, and as I have for several months past been doing my humble but "level" best to remove the national reproach that we have to go to France for aeronautical apparatus, may I be allowed to state that it is not necessary to do this.

Let me not be misunderstood, in saying—and it is only due to the national credit (and incidentally to myself to state the fact)—that for months past a far more efficient propeller than any obtainable on the Continent, and better in all respects, has been and is obtainable in London, with no unconscionable delay, but early and punctual delivery.

It is notorious that the "Voisin" propeller wastes over 50 per cent. of the power applied, hence their use of 50-h.p. engines when about 20-h.p. should suffice.

In the British propeller referred to the writer guarantees a much higher efficiency than from any of French make, and will be pleased to hear from any reader whom the foregoing facts may concern.

Yours faithfully,

Jan. 18th.

SIDNEY H. HOLLANDS.

AN ENGINE FOR MODELS.

To the Editor of FLIGHT.

SIR,—Re "Engine for Models," it seems to me that compressed air is the most suitable power for small models, as it combines lightness of plant with safety of working. If some of our model engineering firms could bring out a small compressed air engine and compressing plant, I think they would find a ready sale.

In an article in the *Model Engineer* (Sept. 3rd and 10th, 1908), some very useful notes were given on curtailing the weight of an engine without sacrificing its efficiency. Perhaps the same process could be used with regard to petrol engines for aeroplanes. For smaller models there is an electric motor sold by the Economic Electric Company, of Twickenham, London, which weighs only 4 ozs.

Details of power and current consumption would doubtless be supplied on application.

Trusting that these remarks may be of some use

I remain, yours faithfully,

Jan. 12th.

ORMSBY SHARE.

To the Editor of FLIGHT.

SIR,—In reply to the letter in your paper by Mr. Eldridge, I may say that I have had the same trouble with experimental models; but being an engineer I have succeeded in overcoming the difficulty by designing and making such an engine as is mentioned which fully answers my expectations. It weighs only 7 lbs., and develops about $\frac{1}{2}$ h.p. complete, the total weight of an aeroplane fitted, being a little over 10 lbs. when in flight. I may say that I have also succeeded in flying fifty-five times with an electro motor and accumulator, the aeroplane carrying its accumulator quite comfortably.

From my experience, the main trouble is not so much with the motive power as in the proportioning and adjustment of the aeroplane balance, even with so large a weight as a 50 lb. model, two of which I have also flown successfully with a $1\frac{1}{2}$ -h.p. motor on board.

Yours very truly,

Stoke Newington, Jan. 15th.

MONTFORD KAY.

To the Editor of FLIGHT.

SIR,—I notice from correspondence in your journal that many experimenters like myself have found great difficulty in making a light powerful motor to drive a model aeroplane.

After much trouble, I have succeeded in making a light motor which drives two 12-inch propellers 1,000 revs. in 60 secs.

The total weight of motor, propellers, shafts and bearings, &c., is only 8 ozs., and can be made complete for the cost of a few shillings. The propellers can be easily altered from propellers to tractors, or vice versa, and the balance is also easily adjusted to suit any style of mono or biplane.

I would arrange to place these upon the market if there would be any demand.

Yours faithfully,

King's Lynn, Jan. 19th.

R. W. TAYLOR.

[Mr. Taylor does not say what type of motor it is to which he refers, nor does he mention the approximate pitch of the two propellers. Both these matters are evidently of so much importance,

as indicating the power available, as well as the possible range of action, that we would suggest to him the desirability of supplementing his letter in these respects.—ED.]

AN AERONAUTICAL BIBLIOGRAPHY.

To the Editor of FLIGHT.

SIR,—Your correspondent, in your issue of Jan. 9th, who wants an "engine for models," will find something to interest him in "The Transactions of the Royal Society of New South Wales," Vols. XVII, XIX, XXI, XXIII, and XXIV. In these are published accounts of experiments with model aeroplanes by Mr. Lawrence Hargrave, with particulars of various motive powers used by him.

May I suggest that you publish in FLIGHT a list of various sound works on artificial flight and scientific journals (volume or date) in which published accounts of experiments are given, with, at the same time, a brief indication of the nature of their contents, i.e., whether highly mathematical and academic in character or simple and straightforward.

A large amount of experimental work has been carried out on sound scientific lines, the results of which would be invaluable, if one only knew where to find published accounts of them. I feel sure that such a list would be greatly appreciated by your more serious readers.

Yours faithfully,

Bristol.

G. H. CHALLENGER.

[We already have in hand such a list of works on aeronautic matters as is referred to by Mr. Challenger; and hope to publish it in an early issue. In the meantime we should esteem it a favour if Mr. Challenger and any other readers would send us particulars of any publications of the kind (with a brief note as to their scope and value) that they may have in their possession, or with which they are acquainted.—ED.]

To the Editor of FLIGHT.

SIR,—Being keenly interested in aerial locomotion, and knowing nothing whatever about it, I wish to take advantage of your offer of assistance through your letter to readers of FLIGHT (No. 1, Vol. I) in asking you to name works on subjects in connection with the above, viz.:—Aerostatics, dynamics, donetics, flight of birds, histories, &c., by whom written, and where obtainable, marking in particular which books you recommend for a novice to start on, to enable him to get hold of the theory as well as the practice of aerial locomotion.

Wishing your paper every success, and thanking you in anticipation,

Believe me, yours truly,

Birkenhead, Jan. 16th.

H. T. NAPIER-HENRY.

✱ ✱ ✱ ✱

ANSWERS TO CORRESPONDENTS.

A.W. (Gathurst).—Your previous letter gave no address; hence delay in dealing with it.

W.O.S. (London, E.C.).—Many thanks for cutting. Needless to say, we fully endorse your comments.

S.J. (Hirnant).—Your further letter is to hand, and the matter contained therein is receiving our careful consideration.

M.E.S. (Birmingham).—By all means send full particulars. We are always happy to give all the assistance that we can.

R.E.N. (Maidenhead).—We hope to find room for your communication in our next issue. It arrived too late for inclusion this week.

✱ ✱ ✱ ✱

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